REMARKS

Claims 1-19 were examined and reported in the Office Action. Claims 1-19 are rejected. Claims 1, 11 and 17 are amended. Claims 1-19 remain.

It is asserted in the Office Action that the drawings are objected to as being informal. Formal drawings are submitted herewith. Approval is respectfully requested.

Applicant notes that the document previously submitted entitled "Out-of-Order" as submitted is complete. The PCT form PCT/ISA/210 is incorrect in specifying pages 127-146. This can be seen by the stamp on page 127 indicating that only pages 127-129 are submitted in the third reference.

Applicant requests reconsideration of the application in view of the following remarks.

I.   35 U.S.C. §102(b) and §102(e)

A.   It is asserted in the Office Action that claims 1-4, 6-15, and 17-18 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,966,544 issued to Sager ("Sager"). Applicant respectfully disagrees.

According to MPEP §2131, "'[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.' (Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)). 'The identical invention must be shown in as complete detail as is contained in the ... claim.' (Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)). The elements must be arranged as required by the claim, but this is not an ipsissimis verbis test, i.e., identity of terminology is not required. (In re Bond, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990))."

Applicant's amended claim 1 contains the limitations of "a replay queue to receive a plurality of instructions; an execution unit to execute the plurality of instructions; a scheduler coupled between the replay queue and the execution unit to speculatively schedule instructions for execution; and a checker coupled to the execution unit to determine whether each instruction of the plurality of instructions has executed successfully, and coupled to the replay queue to dispatch to the replay queue each instruction that has not executed successfully, wherein independent instructions and associated dependent instructions are moved to the replay queue upon unsuccessful execution of an independent instruction until data required for successful execution of the independent instruction is valid."

Applicant's amended claim 11 contains the limitations of "a replay queue to receive a plurality of instructions; at least two execution units to execute the plurality of instructions; at least two schedulers coupled between the replay queue and the execution units to schedule instructions for execution based on data dependencies and instruction latencies; and a checker coupled to the execution units to determine whether each instruction has executed successfully, and coupled to the replay queue to communicate each instruction that has not executed successfully, wherein independent instructions and associated dependent instructions are moved to the replay queue upon unsuccessful execution of an independent instruction until data required for successful execution of the independent instruction is valid."

Applicant's amended claim 17 contains the limitations of "routing the instruction and all associated dependent instructions back to the queue if the instruction did not execute successfully; and retiring the instruction if the instruction executed successfully and allowing the instruction's associated dependent instructions to execute, wherein the instruction and associated dependent instructions are routed to the queue until data required for successful execution of the instruction is valid."

Therefore, Applicant's claimed invention provides a correct scheduling of dependent instructions for replay allowing for optimum performance.

Sager discloses a microprocessor having a replay architecture for data speculation in executing an instruction. Sager also discloses a checker for validating speculated executed instructions. Sager, however, does not teach, disclose or suggest correct replay scheduling of dependent instructions. That is, Sager does not teach, disclose or suggest "wherein independent instructions and associated dependent instructions are moved to the replay queue upon unsuccessful execution of an independent instruction until data required for successful execution of the independent instruction is valid," or "wherein the instruction and associated dependent instructions are routed to the queue until data required for successful execution of the instruction is valid."

Therefore, since Sager does not disclose, teach or suggest all of Applicant's amended claims 1, 11 and 17 respective limitations, Applicant respectfully asserts that a *prima facie* rejection under 35 U.S.C. § 102(b) has not been adequately set forth relative to Sager. Thus, Applicant's amended claims 1, 11 and 17 are not anticipated by Sager. Additionally, the claims that depend directly or indirectly on claims 1, 11 and 17, namely claims 2-4 and 6-10, 12-15, and 18, respectively, are also not anticipated by Sager for the above same reason.

Accordingly, withdrawal of the 35 U.S.C. §102(b) rejection for claims 1-4, 6-15, and 17-18 are respectfully requested.

B.   It is asserted in the Office Action that claims 1-4, 6, 9-15, and 17-19 are rejected under 35 U.S.C. §102(e) as being anticipated by U. S. Patent No. 6, 212,626 issued to Merchant et al. ("Merchant"). Applicant respectfully disagrees.

Applicant's amended claims 1, 11 and 17 are listed above.

Merchant is a continuation-in-part of Sager, which is discussed above in section I(A). Merchant discloses a checker that includes a scoreboard for receiving an external replay signal, and logic for determining whether an instruction executed correctly based on the scoreboard and external replay signal. Merchant, however, does not teach,

disclose or suggest <u>correct</u> and <u>optimum</u> replay scheduling of dependent instructions. That is, <u>Merchant</u> does not teach, disclose or suggest "wherein independent instructions and associated dependent instructions are moved to the replay queue upon unsuccessful execution of an independent instruction until data required for successful execution of the independent instruction is valid," or "wherein the instruction and associated dependent instructions are routed to the queue until data required for successful execution of the instruction is valid."

Therefore, since <u>Merchant</u> does not disclose, teach or suggest all of Applicant's amended claims 1, 11 and 17 respective limitations, Applicant respectfully asserts that a *prima facie* rejection under 35 U.S.C. § 102(e) has not been adequately set forth relative to <u>Sager</u>. Thus, Applicant's amended claims 1, 11 and 17 are not anticipated by <u>Merchant</u>. Additionally, the claims that depend directly or indirectly on claims 1, 11 and 17, namely claims 2-4, 6 and 9-10, 12-15, and 18-19, respectively, are also not anticipated by <u>Merchant</u> for the above same reason.

Accordingly, withdrawal of the 35 U.S.C. §102(e) rejection for claims 1-4, 6, 9-15, and 17-19 are respectfully requested.

II.   35 U.S.C. §103(a)

Claims 5, 16, and 19 are rejected under 35 U.S.C. §103(a) as being unpatentable over <u>Sager</u>, as applied above in view of U. S. Patent No. 5,944,818 issued to Baxter et al., ("<u>Baxter</u>"). Applicant respectfully disagrees.

According to MPEP §2142 "[t]o establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable

expectation of success must both be found in the prior art, and not based on applicant's disclosure." (In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)). Further, according to MPEP §2143.03, "[t]o establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. (In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." "*All words in a claim must be considered* in judging the patentability of that claim against the prior art." (In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970), emphasis added.)

Applicant's claims 5, 16 and 19 depend on amended claims 1, 11 and 17, respectively. Applicant has discussed amended claims 1, 11 and 17 above with regard to Sager.

Baxter discloses a device and technique for accelerating instruction restart. Baxter further discloses determining when a restart condition exists and delivering the macro-instruction to a decode unit when the restart condition is indicated. Baxter, however, does not teach, disclose or suggest correct and optimum replay scheduling of dependent instructions. That is, Baxter does not teach, disclose or suggest "wherein independent instructions and associated dependent instructions are moved to the replay queue upon unsuccessful execution of an independent instruction until data required for successful execution of the independent instruction is valid," or "wherein the instruction and associated dependent instructions are routed to the queue until data required for successful execution of the instruction is valid."

Neither Sager, Baxter, nor the combination of the two, teach, disclose or suggest the limitations contained in Applicant's amended claims 1, 11 and 17, as listed above. Since neither Sager, Baxter, nor the combination of the two, teach, disclose or suggest all the limitations of Applicant's amended claims 1, 11 and 17, as listed above, there would not be any motivation to arrive at Applicant's claimed invention. Thus, Applicant's amended claims 1, 11 and 17 are not obvious over Sager in view of Baxter since a *prima facie* case of obviousness has not been met under MPEP §2142. Additionally, the claims that directly or indirectly depend from amended claims 1, 11

and 17, namely claims 5, 16, and 19, respectively, would also not be obvious over <u>Sager</u> in view of <u>Baxter</u> for the same reason.

Accordingly, withdrawal of the 35 U.S.C. §103(a) rejection for claims 5, 16, and 19 are respectfully requested.
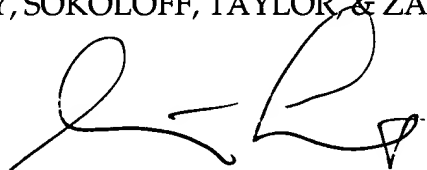
CONCLUSION

In view of the foregoing, it is submitted that claims 1-19 patentably define the subject invention over the cited references of record, and are in condition for allowance and such action is earnestly solicited at the earliest possible date. If the Examiner believes a telephone conference would be useful in moving the case forward, he is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: <u>February 20, 2004</u>   By: _____

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CERTIFICATE OF MAILING
I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail with sufficient postage in an envelope addressed to: Mail Stop Non-Fee Amendments, Commissioner for Patents, P. O. Box 1450, Alexandria, Virginia 22313-1450 on February 20, 2004.

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Jean Svoboda